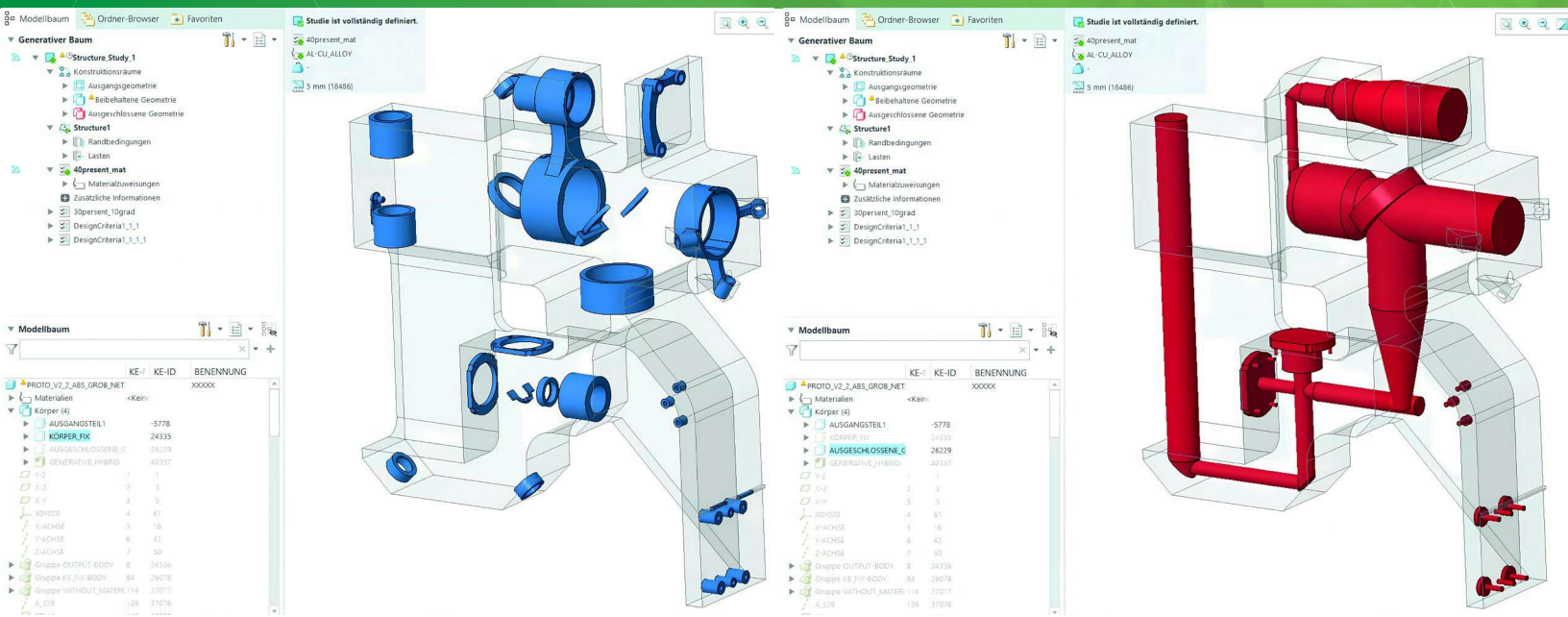
Transforming Optical Design: Zeiss Leverages Creo for Generative Design

How Zeiss Transformed Their Product Development with Creo Generative Topology Optimization



Challenges:

Zeiss faced the challenge of optimizing their component designs to balance performance, functionality, and durability while minimizing material usage and production costs.

Results:

"Zeiss was able to obtain innovative and optimized designs within a few minutes." – Uwe Wolf, System Designer, Zeiss

Products Used:

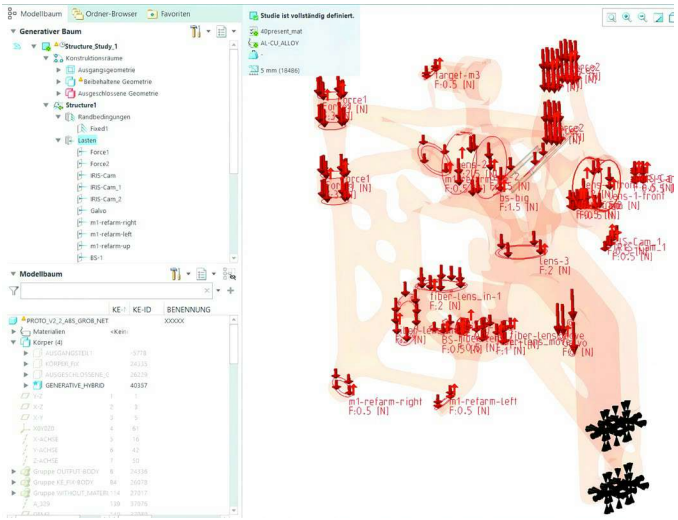
Creo
Creo Generative Topology Optimization (GTO)

Introduction

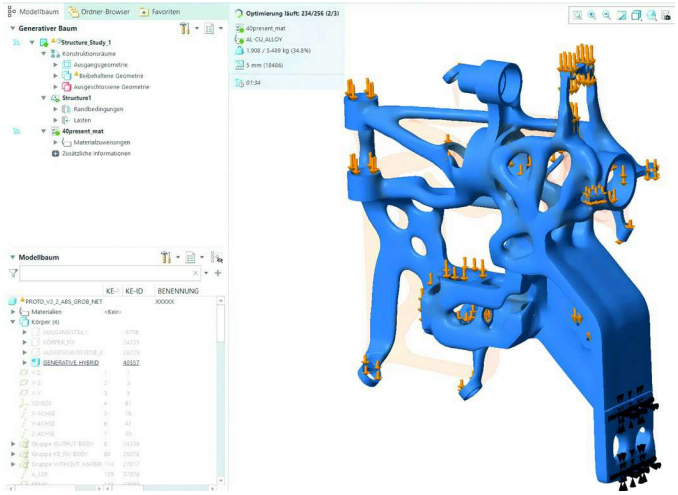
Since 1846, Zeiss has established itself as a global leader in optical technologies, earning its reputation for high-precision lenses and optical systems that serve various sectors, including medical technology, industrial measurement, and semiconductor production. With a workforce of over 45,000 spread across more than 50 countries, Zeiss is dedicated to pushing the boundaries of innovation and delivering high-quality solutions that meet the evolving needs of its customers.

Zeiss Optimizes for Performance and Durability

One challenge Zeiss encountered was figuring out how best to optimize component design for performance, functionality, and durability. To tackle this, Zeiss leveraged Creo Generative Topology Optimization (GTO) to seamlessly meet customer requirements and convert optimized designs into rich B-rep geometry.



In the case of developing a sample medical device, Zeiss needed it to be sturdy and stable, yet lightweight. Through GTO, Zeiss specified the design parameters, loads, supports, and objectives, paving the way for a successful optimization.
In Creo, they created the design space and performed topology optimization to eliminate any surplus material, resulting in an optimal design that satisfied all requirements .



Leveraging Creo Generative Topology Optimization

Using generative design, Zeiss was able to reduce material usage, weight, and production costs, all while improving structural integrity and efficiency. Unlike other generative topology optimization solutions, which either took longer or produced overweight parts, Creo GTO provided Zeiss with very fast and accurate results. Depending on the size of the model and complexity of the analysis, Zeiss was able to obtain innovative and optimized designs within just a few minutes.

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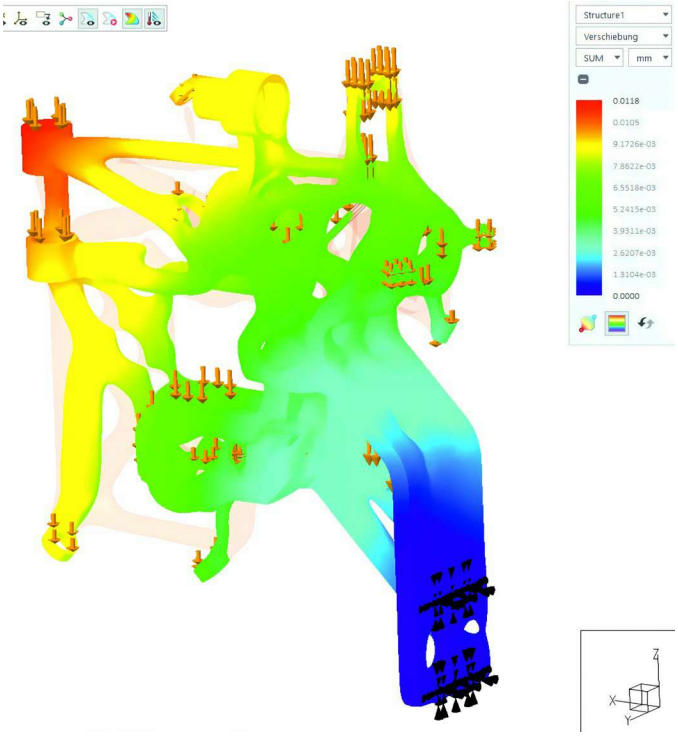
> Uwe Wolf, System Designer, Zeiss



The generative design process also enabled Zeiss to explore a wider range of design possibilities and achieve a higher degree of innovation. By iterating quickly and efficiently, they could refine their designs to achieve optimal performance, leading to more reliable and effective products.

Conclusion

With the power of Creo GTO, Zeiss accelerated its product development process and delivered cutting-edge solutions that met their customers' needs and expectations. By leveraging generative design, design engineers are empowered to create more efficient, sustainable, and cost-effective parts that outperform traditional design offerings. By embracing disruptive technologies like Creo GTO, Zeiss can continue to push the boundaries of innovation and maintain their leadership in the industry.

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